

PLEASE AMEND THE CLAIMS AS INDICATED BELOW:

1-30. Canceled

31. (New) A method of computer numerically controlled (CNC) spectacle lens machining comprising the steps of:

inputting optometric data of a spectacle wearer, including diopter number, values and angles of a cylindrical or prismatic cut, and power and position of a near portion, to a computer associated with a control unit of a lens machining apparatus;

inputting an interpupillary distance (PD) value to the computer corresponding to a selected spectacle frame;

inputting data to the computer representing the shape of the selected spectacle frame, and the curvature, shape, and periphery of a bezel of the selected spectacle frame

inputting data to the computer identifying the material of a selected spectacle lens;

computing a required lens blank diameter from the inputted data;

visually displaying the lens blank diameter;

inserting a lens blank of the required diameter into the lens machining apparatus;

computing the curvature of a bevel on the spectacle lens to be machined from one or more of the optometric data, PD values, shape data, radii of the front or back surface, and center thickness of the spectacle lens;

generating CNC machining data based on the computed curvature;

comparing data characterizing the bezel of the selected spectacle frame with data characterizing a portion of a spectacle edge cutting tool in the machining apparatus and determining from the comparison if machining of a required bevel is possible, and if so, if any correction to the CNC machining data is required;

if correction of the CNC machining data is required to permit machining of the bevel, determining required correction values for the machining data as a function of predetermined machining, workpiece and tool tolerances, and established deviations, and incorporating the correction values in the machining data;

CNC machining of the lens blank according to the machining data with any incorporated correction values to form the peripheral shape and bevel of the lens.

32. (New) A method in accordance with claim 31, further including the step of machining one or both optical surfaces of the lens blank.

33. (New) A method in accordance with claim 31, further including the steps of:
computing the curvature of the front edge and the rear edge of a spectacle lens shape by the computer for a selected spectacle frame from one or more of the optometric data, PD values, shape data, radii of the front and back surface, and center thickness;
calculating the curvature of a bevel suitable for the selected spectacle frame from the computed front and rear edge curvature; and
controlling the bevel machining based on the calculated bevel curvature.

34. (New) A method in accordance with claim 31, further including the steps of:
checking the position of the lens blank inserted in the machine; and
employing the position of the lens blank in generating the machining data.

35. (New) A method in accordance with claim 34, further including the steps of displaying the inputted values, the required lens blank diameter, and a positionally correct image of the lens blank with the spectacle lens shape superimposed thereon on a display device.

36. (New) A method in accordance with claim 31, in which the bezel in the spectacle frame and the bevel on the periphery of the spectacle lens resulting from the bezel in the spectacle lens machining tool are imaged and associated on a display device.

37. (New) A method in accordance with claim 31, in which the data required for the spectacle lens machining is inputted in machine-readable form.

38. (New) A method in accordance with claim 37, in which the required data is at least partially stored on at least one data storage medium.

39. (New) A method in accordance with claim 31, in which the PD values are determined by an automatic video recording system, and the resulting data are transmitted to a computer.

40. (New) A method in accordance with claim 31, in which the shape data of a selected spectacle frame, including the bezel curvature, the bezel shape, and the periphery are determined without contact in a scanning device and transmitted to the computer.

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41. (New) A method in accordance with claim 31, in which the dimensions and the shape of the bezel in the spectacle edge machining tool are determined without contact by a video recording system or laser scanner system, and the resulting data are transmitted to the computer.

42. (New) A method in accordance with claim 31, in which the curvature of the front edge and the rear edge is computed from the radii of the front and back surfaces and the center thickness and/or is obtained from a computer which controls surface machining of the lens..

43. (New) A method in accordance with claim 31, in which the inputted and computed data are transmitted by telecommunication to a spectacle lens manufacturer as data for ordering a lens blank.

44. (New) A method in accordance with claim 43, in which the ordered and received lens blank is finish-machined in a spectacle lens machining machine connected to the control unit.

45. (New) A method in accordance with claim 31, in which the inputted and computed data are transmitted by telecommunication to a spectacle lens manufacturer at a remote location as data for ordering a finish-machined spectacle lens.

46. (New) A spectacle lens machining apparatus comprising:

a housing;

a machining chamber in the housing including therein a spectacle lens holding shaft and an installed edge machining tool;

a computer-operated control device for controlling the machining by the edge machining tool of a lens blank held by the spectacle lens holding shaft;

an input keyboard connected to the computer,

a data reading device connected to the computer for reading spectacle lens machining data stored on a data storage medium, and/or a scanning unit connected to the computer for scanning the spectacle lens opening in a selected spectacle frame and the curvature, cross-sectional shape, and periphery of a bezel in the spectacle frame, and

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a recognition device connected to the computer and operative to recognize the shape and dimensions of a bezel in the installed spectacle lens edge machining tool,

the computer being operative to:

generate CNC machining data;

compare data characterizing the shape of the bezel in the selected spectacle frame with data characterizing a portion of the shape of the edge machining tool;

determine from the comparison if machining of a required bevel is possible with the edge machining tool, and if so, if any correction to the CNC machining data is required;

if correction of the CNC machining data is required to permit machining of the bevel,

determine required correction values for the machining data as a function of predetermined machining, workpiece and tool tolerances, and established deviations,

and incorporate the correction values in the machining data; and

operate the control device to machine the lens blank according to the machining data including any required correction values to form the peripheral shape and bevel for the lens.

47. (New) A spectacle lens machining apparatus in accordance with claim 46, further including a disk drive connected to the computer, and operative to read spectacle lens machining data stored on a floppy disk.

48. (New) A spectacle lens machining apparatus in accordance with claim 46, further including a sensor connected to the computer operative to recognize characterizing identification markings associated with a lens blank, and/or a spectacle frame.

49. (New) A spectacle lens machining apparatus in accordance with Claim 48, wherein the sensor is operative to read the characterizing identification markings from a lens blank, from a package for a lens blank, or from a storage container for a plurality of lens blanks.

50. (New) A spectacle lens machining apparatus in accordance with Claim 48, wherein the sensor is operative to read the characterizing identification markings from a spectacle frame, a package for a spectacle frame, or a storage container for a plurality of spectacle frames.

51. (New) A spectacle lens machining apparatus in accordance with Claim 46, further including a video recording system connected to the computer which is operative to automatically record the PD values of a spectacle wearer from inspection of a selected spectacle frame.

52. (New) A spectacle lens machining apparatus in accordance with Claim 46, further including a lens meter connected to the computer which is operative to automatically record the optical values of a peripherally shaped spectacle lens or of a lens blank.

53. (New) A spectacle lens machining apparatus in accordance with Claim 46, further including a device connected to the computer which is operative to attach a block or suction device to a lens blank or on a peripherally shaped spectacle lens, and to automatically transmit the position of the attached block or suction device to the computer.

54. (New) A spectacle lens machining apparatus in accordance with Claim 46, further including a recognition device connected to the computer which is operative to recognize the position of a lens blank to be machined with respect to the spectacle lens holding shaft.

55. (New) A spectacle lens machining apparatus in accordance with Claim 54, wherein the recognition device is a CCD camera.

56. (New) A spectacle lens machining apparatus in accordance with claim 46, further including a recognition device which is operative to determine the diameter of a lens blank held in the spectacle lens holding shaft and/or the curvature of the front edge and rear edge of the periphery of a periphery shaped spectacle lens.

57. (New) A spectacle lens machining apparatus in accordance with claim 56, wherein the recognition device is a CCD camera.

58. (New) A spectacle lens machining apparatus in accordance with Claim 46, further including a display device connected to the computer, and wherein the computer is operable to display one or more of:
the inputted data;
an image of the lens blank having the required diameter for a spectacle lens or a desired peripheral shape;
a spectacle lens having a desired peripheral shape which has the positionally correct alignment with respect to the lens blank,
the bezel cross section of a selected spectacle frame, and of the bevel of a spectacle lens having a desired peripheral shape to be machined, which (bevel) results from the dimensions and the shape of the bezel of an installed edge machining tool.

59. (New) A spectacle lens machining apparatus in accordance with Claim 46, further including an input keyboard, which has only an on/off key, a start key, a key for interrupting a machining operation in progress, and a stop key,

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60. (New) A spectacle lens machining apparatus in accordance with Claim 46, further including an input keyboard, which has only an on/off key, a start key, a key for interrupting a machining operation in progress, a stop key, and a key for controlling a regrinding operation.
